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TITLE: METHOD   FOR   USING   MEMORY   AREA   IN   MOBILE
COMMUNICATION TERMINAL

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METHOD FOR USING MEMORY AREA IN MOBILE COMMUNICATION TERMINAL

BACKGROUND OF THE INVENTION

1. Field of the Invention

[1] The present invention relates to a mobile communication terminal, and more particularly to a method for efficiently using a memory area in a mobile telecommunication phone.

2. Background of the Related Art

[2] In a related art mobile communication terminal, when a user wants to save particular information, e.g., a telephone number, in a memory area of the terminal, the user is permitted to save only one telephone number for one person per index.

[3] Figure 1 is a structural diagram to illustrate a memory pattern for saving information to an index where the index accommodates only one storage space for a person.

[4] A more advanced related art mobile phone was soon developed. This phone reserved more data storage space per index, so that a user was able to save several telephone numbers, fax numbers, or e-mail addresses for one person in a single index.

[5] Figure 2 is a structural diagram of a memory area to illustrate a pattern for saving information to an index where an index is assigned with a plurality of storage spaces for a person. Referring to Figure 2, a single memory area is thus designated to save all personal information in one index.

[6] For example, in index No. 1, the user can input personal information of an intended person, such as that person's name, office phone number, home phone number, cellular phone number, pager number, e-mail address, fax number, or birthday. In index No. 2, the user can input a second person's information in a similar way. That is, the user can input the second person's name, office phone number, home phone number, cellular phone number, pager number, e-mail address, fax number, or birthday. In this manner, personal information of additional persons may be saved in the other indexes.

[7] The related art memory area structures and methods shown in Figures 1 and 2 have various problems. For example, these memories are operated within the limited memory capacity assigned to the mobile phone. Thus, if there are more than two kinds of personal information for a person, at least two indexes in the mobile phone are needed, which consequently makes it difficult for the user to effectively manage the data. Even if there is little information for a given person, a full memory area for an index it still occupied for that person. The remaining fields of the index are left unused, thereby wasting a lot of memory.

[8] For example, if the user inputs only an office phone number and a home phone number of a desired person, and does not input any other information for that person, i.e., the cellular phone number, pager number, e-mail address, fax number, or birthday, the entire corresponding memory storage space is still allocated but remains mostly unused.

[9] The above references are incorporated by reference herein where appropriate for appropriate teachings of additional or alternative details, features and/or technical background.

SUMMARY OF THE INVENTION

[10]   An object of the invention is to solve at least the above problems and/or disadvantages and to provide at least the advantages described hereinafter.

[11]   It is another object of the present invention to provide a method for efficiently using a limited memory area in a mobile phone.

[12]   It is another object of the present invention to provide a method for assigning a memory area in a mobile communication terminal, in accordance with type of information, each field containing the same kind of personal information of different people, and by designating a corresponding index to the field.

[13]   It is another object of the present invention to provide a method for using memory area in a mobile communication terminal ("mobile phone") by extending its role not only for telephone communications but also for a personal information manager, including an address book, a telephone directory, a day planner, or an organizer.

[14]   It is another object of the present invention to provide a method for expanding the usability of a memory in a mobile phone, by classifying an available memory into a field, which used to be unoccupied in the conventional system, and designating an index number to each field to save a personal information in a relevant category.

[15]   To achieve at least the above objects in whole or in parts, there is provided a method for using a memory area which comprises the steps of assigning a memory area to a corresponding field and designating an index to the memory area in accordance with a kind of information.

[16]   In order to further achieve at least the above objects in whole or in parts, there is provided a method for using a memory area in which a user inputs an intended information in the memory area, finds out whether or not an index corresponding to the entered data exists, and updates the relevant data based on the judgment.

[17]   Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objects and advantages of the invention may be realized and attained as particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[18]   The invention will be described in detail with reference to the following drawings in which like reference numerals refer to like elements wherein:

[19]   Figure 1 is a diagram illustrating a related art pattern of a storage space per capita in an index;

[20]   Figure 2 is a diagram of a related art memory area illustrating a pattern for saving information to an index where an index is assigned with a plurality of storage spaces for a person;

[21]   Figure 3 is a diagram illustrating a memory area of a mobile telecommunication phone according to the preferred embodiment of the present invention;

[22]   Figure 4 is a diagram illustrating the saved memory area according to Figure 3; and

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[23]   Figure 5 is a flow chart of an example illustrating a method for efficiently using a memory area according to the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[24]   Figure 3 illustrates a structure of a memory area in a mobile phone according to the preferred embodiment of the present invention. The structure shown in Figure 3 allows for allocating the memory area by prescribed identification items (for example, name, company, e-mail address and/or fax number, etc.). It should be understood that the memory allocation shown in Figure 3 is provided by way of example, and that any identification items or combination of identification items could be used. Thus, the "company" field could be replaced by an "address" field, or any other field. Regardless of the names of the fields, however, all items that have a common identity are preferably stored according to the allocation method herein described.

[25]   As shown in Figure 3, the preferred embodiment classifies the entire memory area into individual fields for data storage. Specifically, fields could include a name storage field, an office phone number storage field, home phone number storage field, a cellular phone number storage field, a pager number storage field, an e-mail address storage field, a fax number storage field, and a birthday storage field. Each storage field is assigned with a corresponding index, respectively, to help a user access the data. Associated data items in the respective fields share an index number.

[26]   For instance, in the name storage field of Figure 3, a first designated name having index No. 1 is saved in the first field of the name field memory. Another name

associated with index No. 2 is saved in the second field of the name field memory. Additional names and associated index numbers can be saved in the remaining fields of the name field memory.

[27]   Similarly, in the company storage field memory, a designated company name associated with index No. 1 is saved in the first field of the company storage field, and so on. However, when any individual memory field is not occupied, for example, if a given index number has no data for the field, instead of leaving the field empty, the next available data is stored in that field, regardless of the index number. For example, if there is no data for a company corresponding to the second name for index No. 2, the data field in the company storage field memory becomes available for the next company name instead of remaining unused. Thus, the company data corresponding to a third designated name for index No. 3 is saved in the second field of the company field memory.

[28]   Furthermore, if there is no home phone number corresponding to the first designated name for index No. 1 in the home phone number storage field, and the next provided home phone number corresponds to the second name for index No. 2, then the home phone number of the second name is recorded in the first field of the home phone number field memory, which was originally reserved for the first designated name. If the phone number associated with the first name and having index No. 1 is assigned to the first field, but there is no home phone number data corresponding to the second, third, or fourth names, then instead of leaving the data fields unoccupied, a home phone number corresponding to the fifth designated name for index No. 5 is recorded in the second field of the home phone number field memory.

[29]   The same information saving processes are applied to the storage memory areas for any other information to be stored, such as cellular phone numbers, pager numbers, e-mail addresses, and birthdays, for example.

[30]   If missing information is later provided the newly provided data is sequentially inserted into the index order of the memory area. For example, if no company name for the second name (Index No. 2) had initially been provided, but first and third company names had been provided, then the third company name (Index No. 3) would have been stored in the second company name field. If a company name associated with the second name (Index No. 2) is later provided, then the second company data provided afterwards takes its original storage space back. That is, the second field of the company field memory is populated with the second company name. The company data that had originally been stored in company field 2 (i.e., the company associated with the third name) goes back to the next memory field when the second field is filled, (i.e., the third field). In other words, if required, data can be shifted automatically from one field to another field.

[31]   The same memory space assigning method described above holds true for other memory fields. Hence, according to the preferred embodiment, it is not necessary to fill in an assigned memory area, especially when desired information is not available.

[32]   Figure 4 is a structural diagram illustrating the saved memory area according to the memory saving method depicted in Figure 3. The shaded portion in Figure 4 indicates the memory areas, which had been left unused in the related art memory assignment structure of Figure 2 due to unavailability of data, but which are being efficiently used according to the preferred embodiment of the present invention. Thus, previously

unoccupied memory areas are converted into usable memory for other data. All vacant memory areas created due to lack of necessary information for inputting to each field can therefore be used.

[33] Figure 5 is a flow chart which illustrates a method of how to use a memory area more efficiently according to the preferred embodiment. As shown in the Figure 5, a user first inputs a name of an intended person for storage (Step 41). When a name is entered, the search for the prerecorded same name is preferably automatically conducted. A user, however, may also manually check to determine whether there is an index corresponding to the name of the person being entered (Step 42).

[34] If it is determined that a prerecorded index already exists, the user renews the identification item (field) in the index and/or updates with new data (Step 43). However, if a corresponding index does not already exist, the user creates a new index and assigns an appropriate memory area to save corresponding identification item data (Step 44).

[35] In other words, when the user inputs personal information manager (PIM) related information to a mobile phone, it is classified on the basis of a name of a person to be entered. If the same name already exists, the user finds the index that has been assigned to that name field (identification item), and accesses the corresponding memory area to update the information.

[36] For example, assume that the name "Jung Gee Hyun" is to be entered, and the corresponding index number is "1". In this case, the index number "1" in each field is reserved for the information regarding "Jung Gee Hyun". Thus, if a user wishes to change or update the data for "Jung Gee Hyun", the user must select a field first, and then input the

index number "1". Alternatively, a user can input "Jung Gee Hyun" as a key word after selecting a field, and search for a corresponding index number, i.e., "1", for updating the data.

[37]   Similarly, if a user wishes to change or update the existing data in each field, the user can use an index number corresponding to a field name index for changing or updating the desired information i.e., office phone number, home phone number, cellular phone number, beeper number, E-mail address, fax number or birthday,.

[38]   If there is no assigned index number to a corresponding name, the part of an unoccupied memory area can be designated for a new index, and a user can save PIM related information as intended.

[39]   If a new name is to be added, the user designates a new index number for the new name, and saves various information (for example, company data, home phone number data, cellular phone data, etc.) using the newly designated index number aforementioned.

[40]   The preferred embodiment of the present invention has many advantages. For example, it provides for classification of personal information into a memory area of a mobile phone by different identification items (for example, name, company, etc.). It also allows for saving information of the same category in one field with different index numbers.

[41]   In addition, the preferred embodiment provides a method for using a memory area in a mobile phone whereby a name of a person is entered and assigned a prescribed index number. Other data on specific identification items can then be added by searching a corresponding index to the entered name of the person. If a desired index found

data on the identification item corresponding to the index can be added or updated. If a desired index is not available, an appropriate memory area can be assigned to a new index, and the data on the corresponding identification item can be saved.

[42] The foregoing embodiments and advantages are merely exemplary and are not to be construed as limiting the present invention. The present teaching can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art. In the claims, means-plus-function clauses are intended to cover the structures described herein as performing the recited function and not only structural equivalents but also equivalent structures.